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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,682	09/07/2006	Matthew Duncan Powe	66221-0053	1831

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BLOOMFIELD HILLS, MI 48304-0610

EXAMINER

TRAN, DALENA

ART UNIT	PAPER NUMBER
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3664

MAIL DATE	DELIVERY MODE
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01/27/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/553,682	Applicant(s) POWE ET AL.	
	Examiner Dalena Tran	Art Unit 3664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 63-123 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 63-123 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10553682	9/7/06	POWE ET AL.	66221-0053

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EXAMINER

Dalena Tran

ART UNIT	PAPER
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3664	20100125
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DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Art Unit: 3664

DETAILED ACTION

Notice to Applicant(s)

1. This application has been examined. Claims 63-123 are pending.

The prior art submitted on 10/17/05 has been considered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 63-123, are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There was not explains what is “second meteorological model”, and there was not indicated where is “second meteorological model” in any figure drawing.

In applicant’s specification page 13, lines 16-17, “model indicated generally at 250”, however, in applicant’s figure, there is not “model indicated generally at 250”. Also, in page 13, line 26, "channel 280", and line 27, “transmitter 275”, there are not item 280 and 275 in figures drawing.

Correction is required.

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claim 118, is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 118, line 5, “receiving a set of tropospheric delay value modifications previously derived “. However, there is not previous derived value before the step of receiving.

Explanation or amendment or correction is required.

Objection

4. Claim 117, is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claim 117 not been further treated on the merits.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 63-117, are rejected under 35 U.S.C. 102(b) as being anticipated by Mueller et al. (5323322).

As per claim 63, Mueller et al. disclose a method of obtaining tropospheric delay data for use in increasing the accuracy with which the location of a receiver in a global navigation satellite system (GNSS) can be determined, the method comprising the steps of: generating a first set of approximate tropospheric delay values applicable to various receiver geographical locations from a first model at a location remote from receiver (see columns 3-4, lines 56-23;

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columns 10-11, lines 36-42; and columns 30-31, lines 59-39), generating a second set of accurate tropospheric delay values applicable to said various receiver geographical locations from a second meteorological model at a location remote from receiver (see columns 2-3, lines 60-54; columns 25-26, lines 38-19; and column 31, lines 41-60), developing a set of tropospheric delay value modifications applicable to said first model so that together, said first model and tropospheric delay value modifications can provide a set of tropospheric delay values substantially in agreement with said second set of accurate tropospheric delay values (see columns 11-12, lines 43-17; columns 14-15, lines 13-2; and columns 32-34, lines 21-64), and communicating set of tropospheric delay value modifications to receiver (see columns 5-6, lines 44-26; columns 16-17, lines 6-35; column 29, lines 7-46; and column 44, lines 54-68).

As per claims 64-66, Mueller et al. disclose the first model is based on non-meteorological parameters (see column 35, lines 10-65).

As per claims 67-70, Mueller et al. disclose sets of tropospheric delay values comprise zenith tropospheric delay values (see columns 34-35, lines 66-9).

As per claim 71, Mueller et al. disclose the first model contains a mapping function relating tropospheric delay values at a given elevation angle to the zenith tropospheric delay values (see column 28, lines 41-60).

As per claim 72, Mueller et al. disclose set of tropospheric delay value modifications comprises a set of modifications for use with the mapping function of the first model (see column 28, lines 41-60).

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As per claims 73-79, Mueller et al. disclose the delay value modifications are the difference between corresponding values of: the first set of approximate tropospheric delay values attributable to the first model; and the second set of accurate tropospheric delay values attributable to the second meteorological model (see columns 35-36, lines 66-55).

As per claim 80, Mueller et al. disclose the delay value modifications are expressed as a fractional change from the values of the first set of tropospheric delay values (see column 41, lines 1-19).

As per claim 81, Mueller et al. disclose the set of delay value modifications is expressed as a data array, each modification having a value which is determined for an individual grid point on at least a part of the earth's surface (see columns 41-43, lines 20-53).

As per claims 82-83, Mueller et al. disclose set of modifications is expressed as a digital data file, and digital data file is a greyscale image of multi-bit words, each word representing a location of the region (see column 45, lines 4-34).

As per claims 84-85, Mueller et al. disclose applying data reduction to the set of tropospheric delay value modifications to derive a reduced set of tropospheric delay value modifications for communication to a user, and the data reduction is an image compression process (see column 29, lines 47-68).

As per claims 86-87, Mueller et al. disclose reducing the data size by lossy data reduction (see column 30, lines 4-31).

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As per claim 88, Mueller et al. disclose effecting data reduction by reducing the correction set data file according to a JPEG 2000 or JPEG 90 standard (see column 30, lines 34-56).

As per claim 89, Mueller et al. disclose accurate tropospheric delay values are derived by a ray tracing technique (see columns 41-43, lines 20-52).

As per claim 90, Mueller et al. disclose accurate tropospheric delay values are derived by three-dimensional refractive index field generation (see columns 8-10, lines 61-34).

As per claim 91, Mueller et al. disclose meteorological model is based on numerical weather prediction (NWP) data for a region of the earth (see column 1, lines 14-45).

As per claims 92-95, Mueller et al. disclose meteorological model or each tropospheric delay value modification is augmented by directly observed meteorological data (see columns 13-14, lines 28-12).

As per claims 96-97, Mueller et al. disclose directly observed meteorological data is derived as a data set relating to a region of the earth's surface corresponding to at least part of the NWP data (see column 8, lines 6-59).

As per claims 98-101, Mueller et al. disclose region is substantially global (see column 29, lines 7-46).

As per claims 102-108, Mueller et al. disclose predicting accurate tropospheric delay values for one or more times in the future from said meteorological information and developing a prediction set of delay value modifications for said geographic region of the earth's surface,

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whereby each member of said prediction set describes a delay value modification that becomes current as a function of time from development (see columns 46-47, lines 4-21).

As per claim 109, Mueller et al. disclose the set of tropospheric delay value modifications is communicated to said receiver on a communication channel or data link (see column 29, lines 7-46).

As per claims 110-111, Mueller et al. disclose communicating prediction set of delay value modifications as a batch and using members of the set as the time for which each was predicted becomes current in respect of the forecast (see column 45, lines 38-67).

As per claim 112, Mueller et al. disclose communicating at least part of the set of delay value modifications to at least one orbiting satellite and re-transmitting at least part of set to said receiver from an orbiting satellite (see columns 35-36, lines 66-55).

As per claim 113, Mueller et al. disclose only that part of the set of delay value modifications that can be of use to a receiver in a region within range of a satellite is communicated to satellite (see columns 35-36, lines 66-55).

As per claim 114, Mueller et al. disclose applying data reduction sufficient to permit transmission of all or part of said set of delay value modifications useable by receiver within a time dictated by transmission availability and transmission rate of the satellite, time being substantially lower than the validity time of the meteorological information used by the meteorological model (see columns 29-30, lines 47-31).

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As per claims 115-116, Mueller et al. disclose the data reduction is arranged to permit delay value modification data transmission to a receiver at a data rate in the range 25 to 500 bit/s (see column 30, lines 34-56).

As per claim 117, Mueller et al. disclose an apparatus adapted to carry out the method of claims 63-116 (see column 28, lines 15-40).

7. Claims 118-123, are rejected under 35 U.S.C. 102(b) as being anticipated by Fenton (US 2001/0026239 A1).

As per claim 118, Fenton discloses a method of reducing tropospheric delay errors in a global navigation satellite system comprising the steps of: generating a first set of approximate tropospheric delay values from a first model applicable to signals received from a plurality of satellites (see [0010-0012]); receiving a set of tropospheric delay value modifications previously derived from a second meteorological model (see [0018]); and correcting the first set of approximate tropospheric delay value in accordance with the set of tropospheric delay value modifications (see [0019-0023]).

As per claim 119, Fenton discloses the method is employed to more accurately determine the position of the receiver, said method including the further steps of computing an approximate position of the receiver relative to earth's surface after the step of generating the first set of approximate tropospheric delay value, and then computing an accurate location of the receiver after the step of correcting the first set of tropospheric delay values in accordance with the set of tropospheric delay value modifications (see [0013-0017]).

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As per claim 120, Fenton discloses a global navigation satellite system (GNSS) receiver which can compute, with greater accuracy, the location of said receiver, or the current time, said receiver comprising: means operable to generate a first set of approximate tropospheric delay values applicable to signals received from a plurality of said satellites and means operable to compute an approximate position of the receiver relative to earth's surface or time, characterized in that the receiver also comprises (see [0010-0012]); means operable to receive a set of tropospheric delay value modifications previously derived from meteorological data (see [0018]), means to correct the first set of approximate tropospheric delay values in accordance with the set of tropospheric delay value modifications (see [0019-0023]); and means to compute the location of the receiver or the time (see [0024]).

As per claim 121, Fenton discloses means to correct the first set of approximate tropospheric delay values is operable to effect one of interpolation and extrapolation of said modifications according to the computed position of the user relative to locations for which the modifications have been derived (see [0019-0023]).

As per claim 122, Fenton discloses a receiver adapted for correcting tropospheric delay errors in a global navigation satellite system (GNSS) (100) which generates a first set of approximate tropospheric delay values from a first model applicable to signals received from a plurality of said satellites (see [0010-0012]) characterized in that the receiver receives a set of tropospheric delay value modifications previously derived from a second meteorological model (see [0018]); and corrects the first set of approximate tropospheric delay values in accordance with the set of tropospheric delay value modifications (see [0019-0023]).

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As per claim 123, Fenton discloses the receiver can determine its location more accurately by computing an approximate position of the receiver relative to earth's surface after the stop of generating the first set of approximate tropospheric delay values, and then computing an accurate location of the receiver after the step of correcting the first act of tropospheric delay values in accordance with the set of tropospheric delay value modifications (see [0013-0017]).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

. Small (US 2005/0001742 A1)

. Yunck et al. (5828336)

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalena Tran whose telephone number is 571-272-6968. The examiner can normally be reached on M-W (in a first week of a bi-week), and T-R (in a second week of bi-week) from 7:00AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi H. Tran can be reached on 571-272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dalena Tran/
Primary Examiner, Art Unit 3664